CLAIMS

1. A method of communicating secondary data to a GPS receiver having only GPS hardware, comprising the steps of:

controlling the GPS receiver to search for a specified GPS frequency at a specified time, and with a spreading code;

transmitting a secondary data signal that conforms to frequency and data rate characteristics of a GPS signal;

wherein the secondary data signal has subframes having the same format as a GPS navigation data signal except for a portion of the bits within a portion of the words of the subframe, said portion of the bits comprising the secondary data;

receiving and demodulating the secondary data signal at the GPS receiver; and

providing instructions to the processor of the GPS receiver for processing the secondary data.

2. The method of Claim 1, wherein the first two words of the subframe are conventional GPS words.

3. The method of Claim 1, wherein the portion of the words of the subframe is the third through the tenth word.

4. The method of Claim 1, wherein the portion of the bits of the subframe is the first 22 bits.

5.   The method of Claim 1, wherein the secondary data represents assisting data for improving the sensitivity of the GPS receiver.

5   6.   The method of Claim 1, wherein the secondary data is command data for controlling processor tasks other than geolocation.

7.   The method of Claim 1, wherein the secondary data responds to the same processor function call as navigation data.

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8.   The method of Claim 1, wherein the GPS receiver is a target receiver for receiving secondary data not used by non target GPS receivers.

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9.   The method of Claim 1, wherein the spreading code is an unused spreading code.

20   10.   The method of Claim 1, wherein the receiving step is performed by searching in the GPS L1 frequency band with an expected Doppler shift.

11.   A improved GPS receiver for receiving secondary
data, using only GPS hardware including a GPS processing
unit, the improvement comprising:

a processing unit programmed to search for a signal

5   having a specified GPS frequency at a specified time, and
with a spreading code;

wherein the signal conforms to frequency and data
rate characteristics of a GPS signal, but is a secondary
data signal having subframes having the same subframe

10   format as a GPS signal except for a portion of the bits
within a portion of the words of the subframe, said
portion of the bits comprising the secondary data; and

the processing unit further programmed to lock to
the spreading code, to track the carrier signal, to

15   synchronize the subframe, and to access the data bits
within the subframe.

12.   The GPS receiver of Claim 11, wherein the
processor is further programmed to interpret the

20   secondary data.

13.   The GPS receiver of Claim 11, wherein the
processing unit uses the same function calls for
secondary data as for GPS navigation data.

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14.   The GPS receiver of Claim 11, wherein the GPS
receiver is a target receiver for receiving secondary
data not used by non target GPS receivers.

15.   A method of modifying a GPS receiver having a
processing unit so that the GPS receiver may receive
secondary message data, comprising the steps of:
    programming the processing unit to search for a
5   signal having a specified GPS frequency at a specified
time, and with a spreading code;
    wherein the signal conforms to frequency and data
rate characteristics of a GPS signal, but is a secondary
data signal having subframes having the same subframe
10 format as a GPS signal except for a portion of the bits
within a portion of the words of the subframe, said
portion of the bits comprising the secondary data;
    further programming the processing unit to lock to
the spreading code, to track the carrier signal, to
15 synchronize the subframe, and to access the secondary
data bits within the subframe.

    16.   The method of Claim 15, wherein the step of
programming the processing unit to search is performed by
20 modifying a code search algorithm.

    17.   The method of Claim 15, wherein the step of
programming the processing unit to lock to the spreading
code is performed by accessing a code tracking loop.
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    18.   The method of Claim 15, wherein the step of
programming the processing unit to track the carrier
signal is performed by accessing a carrier tracking loop.

19.   The method of Claim 15, wherein the step of programming the processing unit to synchronize with the subframe is performed by accessing synchronization status indicators.

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20.   The method of Claim 15, wherein the step of programming the processing unit to access the secondary data bits is performed by accessing software function calls.